

## WHAT IS CLAIMED:

1. A recombinant DNA molecule encoding a polypeptide having the amino acid sequence SEQ.ID.NO.:2.
- 5
2. The DNA molecule of claim 1 comprising a nucleotide sequence selected from the group consisting of SEQ.ID.NO.:1 and positions 23-1,099 of SEQ.ID.NO.:1.
- 10
3. A DNA molecule that hybridizes under stringent conditions to the DNA of claim 1.
- 15
4. An expression vector comprising the DNA of claim 1.
5. A recombinant host cell comprising the DNA of claim 1.
- 20
6. An isolated HG52 protein having the amino acid sequence SEQ.ID.NO.:2.
7. The isolated HG52 protein of claim 6 that is substantially free from other proteins.
- 25
8. The HG52 protein of claim 6 containing a single amino acid substitution.
9. The HG52 protein of claim 6 containing two or more amino acid substitutions where the substitutions are conservative and do not occur in positions where HG52 and the human thrombin receptor 1 share the same amino acid.
- 30
10. A method for determining whether a substance is a potential agonist or antagonist of HG52 comprising:
- (a) transfecting cells with an expression vector encoding HG52;
- (b) allowing the transfected cells to grow for a time sufficient to
- 35 allow HG52 to be expressed;

(c) exposing the cells to a labeled ligand of HG52 in the presence and in the absence of the substance;

- (d) measuring the binding of the labeled ligand to HG52; where if the amount of binding of the labeled ligand is less in the presence of the substance than in the absence of the substance, then the substance is a potential agonist or antagonist of HG52;

where HG52 has an amino acid sequence of SEQ.ID.NO.:2.

11. A method for determining whether a substance is capable of  
10 binding to HG52 comprising:

(a) providing test cells by transfecting cells with an expression vector that directs the expression of HG52 in the cells;

- 15 (b) exposing the test cells to the substance;  
(c) measuring the amount of binding of the substance to HG52;  
(d) comparing the amount of binding of the substance to HG52 in the test cells with the amount of binding of the substance to control cells that have not been transfected with HG52;

wherein if the amount of binding of the substance is greater in the test cells as compared to the control cells, the substance is capable of binding to HG52;

- 20 where HG52 has an amino acid sequence of SEQ.ID.NO.:2.

12. A method for determining whether a substance is capable of binding to HG52 comprising:

- (a) providing test cells by transfecting cells with an expression  
25 vector that directs the expression of HG52 in the cells;

(b) preparing membranes containing HG52 from the test cells and exposing the membranes to a ligand of HG52 under conditions such that the ligand binds to the HG52 in the membranes;

- (c) subsequently or concurrently to step (b), exposing the  
30 membranes from the test cells to a substance;

(d) measuring the amount of binding of the ligand to the HG52 in the membranes in the presence and the absence of the substance;

(e) comparing the amount of binding of the ligand to HG52 in the membranes in the presence and the absence of the substance where a decrease in the

amount of binding of the ligand to HG52 in the membranes in the presence of the substance indicates that the substance is capable of binding to HG52;

where HG52 has an amino acid sequence of SEQ.ID.NO.:2.

5           13.     A method for determining whether a substance is capable of binding to HG52 comprising:

(a)     providing test cells by transfecting cells with an expression vector that directs the expression of HG52 in the cells;

10           (b)     preparing membranes containing HG52 from the test cells and exposing the membranes from the test cells to the substance;

(c)     measuring the amount of binding of the substance to the HG52 in the membranes from the test cells;

15           (d)     comparing the amount of binding of the substance to HG52 in the membranes from the test cells with the amount of binding of the substance to membranes from control cells that have not been transfected with HG52;

where HG52 has an amino acid sequence of SEQ.ID.NO.:2;

20           where if the amount of binding of the substance to HG52 in the membranes from the test cells is greater than the amount of binding of the substance to the membranes from the control cells, then the substance is capable of binding to HG52.

14.     A method of identifying antagonists of HG52 comprising:

(a)     providing cells that expresses a chimeric HG52 protein fused at its C-terminus to a promiscuous G-protein;

25           (b)     exposing the cells to an agonist of HG52;

(c)     subsequently or concurrently to step (b), exposing the cells to a substance that is a suspected antagonist of HG52;

(d)     measuring the level of inositol phosphates in the cells;

30           where a decrease in the level of inositol phosphates in the cells in the presence of the substance as compared to the level of inositol phosphates in the cells in the absence of the substance indicates that the substance is an antagonist of HG52.

15.     A method of identifying agonists of HG52 comprising:

35           (a)     providing cells that expresses both HG52 and a promiscuous G-protein;

(b) exposing the cells to a substance that is a suspected agonist of HG52;

- (c) measuring the level of inositol phosphates in the cells;  
where an increase in the level of inositol phosphates in the cells as  
5 compared to the level of inositol phosphates in the cells in the absence of the  
suspected agonist indicates that the substance is an agonist of HG52;  
where HG52 has an amino acid sequence of SEQ.ID.NO.:2.

16. A method of identifying antagonists of HG52 comprising:

- 10 (a) providing cells that expresses both HG52 and a promiscuous  
G-protein;  
(b) exposing the cells to a substance that is an agonist of HG52;  
(c) subsequently or concurrently to step (b), exposing the cells to a  
substance that is a suspected antagonist of HG52;  
15 (d) measuring the level of inositol phosphates in the cells;  
where a decrease in the level of inositol phosphates in the cells in the  
presence of the suspected antagonist as compared to the level of inositol phosphates  
in the cells in the absence of the suspected antagonist indicates that the substance is  
an antagonist of HG52;  
20 where HG52 has an amino acid sequence of SEQ.ID.NO.:2.

17. An antibody that binds specifically to HG52 where HG52 has  
an amino acid sequence of SEQ.ID.NO.:2.